**Patent Claims:**

1. A sensor arrangement
having a plurality of sensor devices formed on and/or in a substrate, each of the sensor devices having

- an electrical signal converter;
- a sensor element coupled to the signal converter, which sensor element can be used to characteristically influence the electrical conductivity of the signal converter on account of a sensor event on the sensor element;
- a device for keeping constant an electrical voltage present at the signal converter;
- a device for detecting the value of the electric current flowing through the signal converter as sensor signal.

2. The sensor arrangement as claimed in claim 1,
in which the electronic signal converter is a transistor.

3. The sensor arrangement as claimed in claim 1 or 2,
in which the electronic signal converter is a field-effect transistor whose gate terminal is coupled to the sensor element, the device for keeping constant an electrical voltage being set up in such a way that it keeps constant the electrical voltage between the source/drain terminals of the field-effect transistor.

4. The sensor arrangement as claimed in one of claims 1 to 3,
having an evaluation unit, which is provided with the value of the electric current as sensor signal.

5. The sensor arrangement as claimed in claim 4,
in which the evaluation unit is set up in such a way that it forms, from the value of the electric current, an electrical voltage characteristic of this value or

maps the value of the electric current onto a digitally coded value that characterizes the latter.

6. The sensor arrangement as claimed in claim 5, in which the evaluation unit has an operational amplifier

- having a first input, to which the sensor signal can be applied;
- having a second input, to which an electrical reference potential can be applied;
- having an output, at which the characteristic electrical voltage is provided;
- the first input and the output being coupled to one another by means of a nonreactive resistor.

7. The sensor arrangement as claimed in one of claims 1 to 6, configured as a biosensor arrangement.

8. The sensor arrangement as claimed in one of claims 3 to 7, which has a calibration device for calibrating a respective sensor device, which is set up in such a way that it can be used to bring the gate region of the field-effect transistor to an electrical calibration potential such that the electric current is independent of parameter fluctuations of the field-effect transistor.

9. The sensor arrangement as claimed in claim 8, in which the calibration device is set up in such a way that an electric calibration current can be applied to the gate terminal and to a source/drain terminal of the field-effect transistor for calibration purposes.

10. The sensor arrangement as claimed in one of claims 4 to 9, in which the evaluation unit has a correlated double

sampling device, which is set up in such a way that it forms, in the case of a sensor event, a value of the electric current that is independent of parameter fluctuations of the field-effect transistor.

11. The sensor arrangement as claimed in claim 10, in which the correlated double sampling device is set up in such a way that, by means of this device,

- in a calibration phase, the gate region of the field-effect transistor is brought to an electrical calibration potential and the associated value of the electric current is detected as calibration signal and stored;
- in a detection phase, the value of the electric current on account of a sensor event is detected as sensor signal;
- in an evaluation phase, sensor signal and calibration signal are evaluated jointly.

12. The sensor arrangement as claimed in one of claims 1 to 11, in which the sensor devices are arranged essentially in matrix form on and/or in the substrate and are connected up by means of row and column lines in such a way that the sensor devices can be driven individually, row by row or column by column.

13. The sensor arrangement as claimed in claim 12, in which at least one evaluation unit, at least one calibration device and/or at least one correlated double sampling device are/is provided jointly for at least a portion of the sensor devices of a row line or a column line.

14. A method for operating a sensor arrangement

- with a sensor arrangement having a plurality of sensor devices formed on and/or in a substrate, each of the sensor devices having

- an electrical signal converter;
- a sensor element coupled to the signal converter, which sensor element can be used to characteristically influence the electrical conductivity of the signal converter on account of a sensor event on the sensor element;
- a device for keeping constant an electrical voltage present at the signal converter;
- a device for detecting the value of the electric current flowing through the signal converter as sensor signal;

• in which case, in accordance with the method,

- the electrical conductivity of the signal converter is characteristically influenced on account of a sensor event on the sensor element;
- the electrical voltage at the signal converter is kept constant;
- the electric current flowing through the signal converter is detected as sensor signal.

15. The method as claimed in claim 14, in which a field-effect transistor whose gate terminal is coupled to the sensor element is used as the electronic signal converter, the electrical voltage between the source/drain terminals of the field-effect transistor being kept constant.

16. The method as claimed in claim 15, in which at least a portion of the sensor devices is calibrated by the gate region of the respective field-effect transistor being brought to an electrical calibration potential such that the value of the electric current in the case of a sensor event is independent of parameter fluctuations of the field-effect transistor.

17. The method as claimed in claim 15,

in which a value of the electric current that is independent of parameter fluctuations of the field-effect transistor is formed using the correlated double sampling method in the case of a sensor event.